

SUPRUNENKO, Afanasiy Lukich; PAVLOV, M., red.; TITOV, V., red.;
VORONKOVA, M., tekhn.red.

[China builds socialism] Kitai stroit sotsializm. Smolensk,
Smolenskoe knizhnoe izd-vo, 1959. 331 p. (MIRA 13:6)
(China--Economic conditions)

BANYA, N.L. inzh. (Kiyev); GOLOVNYAK, D.I., inzh. (Kiyev); SUPRUNENKO, A.R.,
(Kiyev)

Speeding up railroad car circulation on the Kiev Division of the
Southwest Railroad. Zhel.dor.transp. 40 no.10:70-71 0 '58.
(MIRA 11:12)
(Kiev Province--Railroads--Management)

8(2)

05393
SOV/107-59-8-13/49

AUTHOR: Mikhaylov, V., Director, Suprunenko, R. M. Yankevich, V.

TITLE: A Radio-Controlled Tractor

PERIODICAL: Radio, 1959, Nr 8, pp 17 - 18 (USSR)

ABSTRACT: Remote controls for a DT-54, tractor to be used for ploughing, were developed at the plant "Kraspromavtomatika". An R-106 transmitter working on 46.1 - 48.65 Mc is equipped with a simple audio frequency oscillator producing six frequencies in the range from 200-325 cycles. The transmitter has a range of 3 km and is powered by 2NKN-24 batteries. The antenna is 1.5 m long. A RUM-1 receiver and nine relays are installed on the tractor. The receiver reproduces the six different audio frequencies which cause oscillations of six resonance relay reeds. The vibrations of the reeds close the contacts of polarized relays, which in turn actuate the RKS-3 power

Card 1/3

05393
SOV/107-59-8-13/49

A Radio-Controlled Tractor

relays. The power relays close the circuits of electromagnets operating the valves of the hydraulic system, which actuates the controls of the tractor. Six commands are possible, according to which the tractor will start or stop, turn right or left, raise or lower the plough. Six differently-colored lamps are mounted on the roof of the tractor, indicating the proper reception of the signal and the functioning of the controls. The receiver is mounted on rubber cushions. The polarized relays are suspended by springs to a common panel. The receiver may be fed from dry cells or from the battery installed on the tractor, using a transistorized converter. The transmitter of the RUM-1 remote control equipment, widely used for aircraft and ship models, proved inadequate, because of the low stability of the carrier and modulation frequency. Additional equipment is

Card 2/3

MIKHAYLOV, V., inzh. (g. Krasnoyarsk); SUPRUNENKO, B., inzh. (g. Krasnoyarsk);
YANKOVICH, V., inzh. (g. Krasnoyarsk)

Radio-controlled DT-54A tractor. Nauka i pered. op. v sel'khoz.
9 no.7:62-65 J1 '59. (MIRA 12:11)
(Tractors) (Radio control)

MIKHAYLOV, V.; SUPRUNENKO, B.; YANKOVICH, V.

Radio-controlled tractor. Trakt. i sel'khoz mash. no. 11:19-21 N '59.
(Tractors) (Automatic control) (MIRA 13:3)

MIKHAYLOV, V.A., inzh.; SUPRUNENKO, B.M., inzh.; YANKEVICH, V.V., inzh.

Radio-controlled tractors. Mekh.i elek.sots.sel'khoz. 17
no.5:51-53 '59. (MIRA 12:12)

1. "Kraspromavtomatika" Krasnoyarskogo sovnarkhoza.
(Tractors--Radio control)

СУПРУНЕНКО Д. А.

of sub-
 0.12), 331
 of degree
 Let g be
 number of
 \mathbb{F}_q and \mathbb{F}_q
 subgroup
 Let G be
 where G
 normal si
 the additi
 \mathbb{F}_q is
 composite
 factors
 the \mathbb{F}_q
 current in
 which can
 in G [10]
 7. A prime
 of normal
 primitive
 for the
 to this, be
 group G
 (M6).
 into D. Pre
 (Russian,
 the author
 will function
 substitutions
 elements of \mathbb{F}_q
 Let G be a
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 any solvable
 "maximal"
 induces a di
 \mathbb{F}_q such th
 group on each
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 Over a \mathbb{F}_q
 basis, in term
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 three result
 \mathbb{F}_q can be deter
 of degree \mathbb{F}_q
 and for the
 certain unimod
 in G [10]

SUPRUNENKO, D.A.

Suprunenko, D. A. Irreducible nilpotent matrix groups of prime degree. Mat. Sbornik N.S. 31(73), 353-358 (1952). (Russian)

Let Ω be an algebraically closed field, p a prime number, $GL(p, \Omega)$ the full linear group of degree p over Ω , M the multiplicative group of Ω . The author proves the following three theorems. 1. If p is not the characteristic of Ω , then there exist (finitely) nilpotent irreducible matrix groups over Ω whose centre is equal to M , with an arbitrary preassigned length of the upper central series. 2. Let Γ and Γ' be nilpotent irreducible matrix groups of degree p over Ω with centre M , and let l, l' be the lengths of the upper central series of Γ, Γ' respectively. If $l=l'$, then Γ and Γ' are conjugate in $GL(p, \Omega)$; if $l>l'$, then Γ contains a subgroup conjugate to Γ' in $GL(p, \Omega)$. 3. The index of the centre of a nilpotent irreducible matrix group of degree p over Ω is equal to p^l , where l is the length of the upper central series. (The restriction on the centre in theorems 1 and 2 is not very serious, since for any nilpotent irreducible group Γ over Ω the group ΓM is also nilpotent and has centre M .)

K. A. Hirsch (London).

DECLASSIFIED Review (unclassified)
on 5, May 1953, pp 439-522

SUPRUNENKO, D.

*Suprunenko, D. Soluble groups of matrices. Doklady Akad. Nauk SSSR (N.S.) 83, 183-186 (1952). (Russian)
The author continues his study of maximal irreducible soluble subgroups of the general linear group $GL(n, F)$ over an arbitrary field. In the case of a finite ground field we have the classical problem posed by Galois (construction of primitive permutation groups of given degree) to which the author has successfully contributed [Mat. Sbornik N.S. 20(62), 331-350 (1947); these Rev. 8, 562]. The case of an arbitrary ground field has first been treated in an earlier paper by the author [Učeny Zapiski Byeloruss. Gos. Univ. Ser. Fiz.-Mat. 12 (1951)]. Unfortunately this publication is

MATHEMATICAL REVIEWS (Unclassified)
Vol. 14, No. 1, January 1953, pp. 1-120

field has a finite index in \mathbb{Q}

4. N. Gorenstein, *R/S*, 1951, p. 421

SUPRUNENKO, D. A.
USSR/Mathematics - Matrix groups

FD-1429

Card 1/1 : Pub. 64 - 7/9

Author : Suprunenko, D. A. (Moscow)

Title : Irreducible nilpotent matrix groups

Periodical : Mat. sbor., 35 (77), pp 501-512, Nov-Dec 1954

Abstract : In the present article the author applies the results of his earlier work ("Irreducible nilpotent matrix groups of prime degree," *ibid.*, 31 (73), 353-358, 1952) to nilpotent irreducible groups of matrixes whose power does not possess quadratic divisors. He also describes meta-Abelian irreducible groups of matrixes of arbitrary power over an algebraically closed field. The conditions necessary and sufficient for the existence of nilpotent irreducible groups of matrixes of given power over an algebraically closed field are demonstrated. Five references, USSR.

Institution :

Submitted : December 9, 1953

Suprunchenko, D

USSR/Mathematics - Topology

Card 1/1 Pub. 22 - 5/47

Authors : Suprunchenko, D.

Title : About nil-potent transitive subgroups of a symmetrical group

Periodical : Dok. AN SSSR 99/1, 23-25, Nov 1, 1954

Abstract : A series of theorems is presented. They are intended to prove the inter-conjugation of all maximal transitive nil-potent subgroups of a symmetrical group. One reference (1948).

Institution : Mathematical Institute im. V. A. Steklov of the Acad. of Scs. of the USSR

Presented by : Academician A. N. Kolmogorov, August 29, 1954

Suprunenko, D. A.

USSR/ Mathematics - Max. nil-potent subsets

Card 1/1 Pub. 22 - 10/49

Authors : Suprunenko, D. A.

Title : The locally-nil-potent non reducible sub-groups of a full linear group

Periodical : Dok. AN SSSR 102/1, 41-44, May 1, 1955

Abstract : A proof of a series of lemmas and theorems is presented proving the existence of the conjugation among the all maximal locally nil-potent, non-reducible sub-groups of a complete linear group (set) over an algebraically closed field. Two USSR references (1953 and 1954).

Institution : The Acad. of Scs., USSR, V. A. Steklov Mathematical Institute

Presented by : Academician A. N. Kolmogorov, January 7, 1955

SUPRUNENKO, D.A.

One property of nilpotent matrix groups. Izv. AN SSSR. Ser. mat.
19 no.4:273-274 J1-Ag'55. (MLRA 8:10)

1. Predstavleno akademikom I.M. Vinogradovym
(Groups, Theory of)

SUPRUNENKO, Dmitriy Alekseyevich

Belorussian State U imeni Lenin, Academic degree of Doctor of Physico-Mathematical Sciences, based on his defense, 15 Dec 55, in the Council of Mathematics Inst imeni Steklov, Acad Sci USSR, of his dissertation entitled: "Solvable and nil potent matrix groups."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 5, 3 Mar 56, Byulleten' MVO SSSR, No. 2, Jan 57, Moscow, pp 17-20, Uncl. JPRS/NY-466

Call Nr: AF 1108825

Transactions of the Third All-union Mathematical Congress (Cont.) Moscow
Jun-Jul '56, Trudy '56, V. 1, Sect. Rpts., Izdatel'stvo AN SSSR, Moscow, 1956, 237 pp.
Suprunenko, D. A. (Minsk). Linear Nilpotent Groups. 35

Turkin, V. K. (Moscow). Quasi-monomial Representations
of Groups. 35

Urazbayev, B. M. (Alma-Ata). On Some Asymptotic Formulas
in Algebra. 35-36

Mention is made of Delone, B. N. and Fadeyev, D. K.

Khion, Ya. V. (Tartu). Rings Normed by Means of Semi-groups. 35-36

Chernikov, S. N. (Molotov). Nilpotent Groups. 37-40

Mention is made of Kurosh, A. G., Schmidt, O. Yu., Ado, I. D.,
Mal'tsev, A. I., Myagkov, N. N., Mukhamedzhan, Kh. Kh.,
Glushkov, V. M., Golovin, O. N., Sesekin, N. F., Smirnov, D. M.,
Plotkin, B. I., Charin, V. S.

Card 12/80

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... of \mathfrak{g} the algebra \mathfrak{g}_α contains only a
finite number of non-conjugate maximal nilpotent
commutative subalgebras. The behaviour in the re
... ..

SUPRUNENKO, D.A.

Maximum commutative nilpotent subalgebra in a total $n-2$ class
matrix algebra. Vestsi AN BSSR, Ser. fiz.-tekh. nav. no. 3:135-145
'56. (MIRA 10:1)
(Algebra, Abstract) (Matrices)

SUPRUNENKO, D.A.

Two theorems on reducible nilpotent linear groups. Trudy Inst.
fiz. i mat. AN BSSR no.2:255-259 ' 57. (MIRA 12:1)
(Groups, Theory of)

FEDARAU, F.I.; SUPRUNENKA, D.A.; NEKRASHEVICH, I.G.

History of development of physicomathematical sciences in
White Russia. Vestsi AN BSSR Ser. fiz.-tekh. nav. no.3:17-20
'57. (MIRA 11:1)

(White Russia--Physics)
(White Russia--Mathematics)

SUBJECT USSR/MATHEMATICS/Algebra
 AUTHOR SUPRUNENKO D.A.
 TITLE On linear solvable groups.
 PERIODICAL Mat.Sbornik, n.Ser. 41, 317-332 (1957)
 reviewed 7/1957

CARD 1/2

PG - 949

Let P be an arbitrary field; $P^{(n)}$ the linear n -dimensional space over P ; $GL(n, P)$ the full linear group, i.e. the group of all non-degenerated linear transformations of $P^{(n)}$. The author considers the solvable subgroups of $GL(n, P)$. At first several lemmas on irreducible imprimitive subgroups of $GL(n, P)$ are proved and a very simple proof of a Clifford's theorem (Ann. of Math. 38, 533-550 (1937)) is given. Then the author investigates the maximal primitive irreducible solvable subgroup of $GL(n, P)$ and the series

$$\Gamma \supseteq V \supseteq A \supseteq F \supseteq E.$$

Here Γ denotes the maximal irreducible primitive solvable subgroup of $GL(n, P)$; F is the maximal Abelian normal divisor of Γ ; V is the centralizer of F in Γ ; A/F is the maximal group among the Abelian normal divisors Γ/F which are contained in V/F . F is the multiplicative group of the field Σ which is contained in the full linear algebra P_n over P , where $\Sigma: P = m, m/n$. V/A can

16(1)

PHASE I BOOK EXPLOITATION

SOV/2042

Suprunenko, Dmitriy Alekseyevich

Razreshimyye i nil'potentnyye lineynyye gruppy (Solvable and Nilpotent Linear Groups) Minsk, Izd-vo Belgosuniv., 1958. 92 p. 2,000 copies printed. Errata slip inserted.

Sponsoring Agency: Belorusskiy gosudarstvennyy universitet.

Ed.: V.G. Kravtsov; Tech. Ed.: Ye.I. Yarish.

PURPOSE: This book is intended for mathematicians specializing in group theory.

COVERAGE: The book contains a general synthesis of articles written by the author on linear solvable groups and on linear nilpotent groups. In studying solvable subgroups of the complete linear group, attention is concentrated mainly on maximal solvable subgroups, the study of which is reduced to the study of maximal primitive solvable subgroups of a complete linear group over any arbitrary field. Series of results are presented concerning the construction of maximal primitive subgroups of a complete linear group. The author gives a complete description of maximal solvable irreducible subgroups $GL(n, P)$, where P is an algebraically closed field, and r a number without quadratic divisors, the construction of which is reduced to the construction of maximal solvable subgroups of symplectic

Card 1/4

SUPRUNENKO, D. A.

"Locally Nilpotent Subgroups of the Real Full Linear Group."

a

paper submitted at International Congress Mathematicians, Edinburgh, 14 - 21 Aug
1958.

SUPRUNENKO, D.A.: MEDVEDEVA, R.P.

Irreducible nilpotent linear groups above a field of rational numbers. Dokl. AN BSSR 2 no.9:363-364 0 '58. (MIRA 12:7)

1. Predstavleno akademikom AN BSSR V.I. Krylovym.
(Groups, Theory of)

89532

S/044/60/000/008/004/035
C111/C222

/6.2000

AUTHOR: Suprunenko, D.A.

TITLE: On nilpotent linear groups over a finite field

PERIODICAL: Referativnyy zhurnal. Matematika, no.8, 1960, 29,
abstract no.8619. Tr. In-ta fiz. i matem. AN BSSR, 1959,
no.3, 213-220

TEXT: It is proved that the maximal irreducible Abelian subgroup of the complete linear group $GL(n, p^m)$ over the finite field $GF(p^m)$ is almost always the maximal nilpotent subgroup of $GL(n, p^m)$. An exception is the case when simultaneously $n = 2$, $m = 1$, and p is a prime number of Mersenne. In this case the maximal irreducible Abelian subgroup of $GL(2, p)$ is contained in a nilpotent group of the order $2(p^2 - 1)$. A mark for the existence of irreducible metabelian subgroups in $GL(n, p^m)$ is given. If n and $p^{m \cdot n} - 1$ are relatively prime then every irreducible nilpotent subgroup of $GL(n, p^m)$ is commutative. ✓

[Abstracter's note: The above text is a full translation of the original Soviet abstract.]

Card 1/1

89533


S/044/60/000/008/005/035
C111/C222

16.2000

AUTHORS: Suprunenko, D.A., and Tyshkevich, R.I.

TITLE: Reducible nilpotent and locally nilpotent linear groups

PERIODICAL: Referativnyy zhurnal. Matematika, no.8, 1960, 29,
abstract no.8620. Tr. In-ta fiz. i matem. AN BSSR, 1959,
no.3, 221-233

TEXT: The authors describe a simple method for the reduction of the investigation of arbitrary nilpotent linear groups over the algebraically closed field P to the investigation of irreducible nilpotent groups. Basing on this construction and on earlier results the authors prove the following facts. 1) All maximal nilpotent subgroups of $GL(n, P)$ of the class $1 \geq n-1$ decompose into an only finite number of classes of conjugate subgroups. 2) The number of non-conjugated maximal locally nilpotent subgroups of $GL(n, P)$ is smaller than or equal to the number of representations of the number n in the form: $n = k_1 \frac{n_1}{k_1} + k_2 \frac{n_2}{k_2} + \dots + k_s \frac{n_s}{k_s}$, 

where n_i/k_i are not divisible by the characteristic of the field P .
[Abstracter's note: The above text is a full translation of the original Soviet abstract.]

Card 1/1

SUPRUNENKO, D.; APATENOK, R.

Nilpotent nonreducible linear groups above a finite field.
Dokl.AN BSSR 3 no.12:475-478 D '59. (MIRA 13:4)

1. Predstavleno akademikom AN BSSR V.I.Krylovym.
(Groups, Theory of)

~~16(1)~~ 16.2000

05711

AUTHOR: Suprunenko, D.A. (Minsk)

SOV/39-49-3-7/7

TITLE: On Real Linear Nilpotent Groups

PERIODICAL: Matematicheskii Sbornik, 1959, Vol 49, Nr 3, pp 347-352 (USSR)

ABSTRACT: The author investigates irreducible nilpotent subgroups of the complete linear group $GL(n, D)$, where D is the field of all real numbers. He proves : 1. for every even $n \geq 2$ and $l > 1$ $GL(n, D)$ possesses irreducible nilpotent subgroups of the nilpotence class l 2.) for odd n $GL(n, D)$ has no irreducible nilpotent subgroups 3.) for even n there exist in $GL(n, D)$ only finitely many non-conjugate maximum irreducible nilpotent subgroups of given nilpotence class 4.) if n is no power of 2, then the description of the maximum irreducible nilpotent subgroups of given nilpotence class l is reduced from $GL(n, D)$ to the same problem for $GL(n/2, K)$, where K is the field of the complex numbers. As an example the author describes irreducible nilpotent subgroups of $GL(2, D)$. There are 4 Soviet references.

ASSOCIATION: Institut fiziki i matematiki AN BSSR) Institute of Physics and Mathematics, AS Belorusskaya SSR)

SUBMITTED: February 1, 1958

Card 1/1

SUPRUNENKO, D.A.; TYSHKEVICH, R.I.

Reducible locally nilpotent linear groups. Dokl. AN BSSR 4 no. 4:
137-139 Ap '60. (MIRA 13:10)

1. Belorusskiy gosudarstvennyy universitet im. V.I. Lenina.
(Groups, Theory of)

SUPRUNENKO, D.A.

Linear p-groups. Dokl.AN BSSR 4 no.6:233-235 Je '60.
(MIRA 13:7)

1. Institut matematiki AN BSSR.
(Groups, Theory of)

GARASHCHUK, M.S.; SUPRUNENKO, D.A.

Linear nilgroups. Dokl.AN BSSR 4 no.10:407-408 '60. (MIRA 13:9)

1. Belorusskiy gosudarstvennyy universitet im. V.I.Lenina.
(Groups, Theory of)

SUPRUNENKO, D.A.; TYSHKOVICH, R.I.

Reducible locally nilpotent linear groups. Izv. AN SSSR. Ser.
mat. 24 no. 6:787-806 N-D '60. (MIRA 14:1)

1. Predstavleno akademikom A.I. Mal'tsevyu.
(Groups, Theory of)

SUPRUNENKO, D.A. (Minsk)

Real linear locally nilpotent groups. Mat.sbor. 50 no.1:59-66
Ja '60. (MIRA 13:6)

(Groups, Theory of)

SUPRUNENKO, D.A.

Condition of complete reducibility of a solvable linear system.
Dokl. AN BSSR 5 no.8:321-323 Ag '61. (MIRA 14:8)

1. Belorusskiy gosudarstvennyy universitet im. V.I. Lenina.
(Matrices)

SHPRUTENKO, D.A.

Reducible matrix groups. Dokl. Akad. Nauk SSSR 5 no.9:371-374 S '61.
(MIRA 14:10)

(Matrices)

SUPRUNENKO, D.A.; APATENOK, R.F.

Nilpotent irreducible groups of matrices over a finite field. Dokl.
AN BSSR 5 no.12:535-537 D '61. (MIRA 15:1)

1. Belorusskiy gosudarstvennyy universitet imeni V.I.Lenina.
(Matrices)

S. M. G. B. L. (First)

Periodic linear locally nilpotent groups. Mat. ser. 55 no.1:3-
63 '61. (CIA 14:10)

(Groups, Theory of)

SUPRUNENKO, D.A.

Periodic linear groups. Sib. mat. zhur. 3 no.1:87-94 Ja-F
'62. (MIRA 15:3)

(Groups, Theory of)

SUPRUNENKO, D.A.; GARASHCHUK, M.S.

Linear groups with Engel's condition. Dokl. AN BSSR 6 no.5:277-279
My '62. (MIRA 15:6)

1. Belorusskiy gosudarstvennyy universitet im. V.I. Lenina.
(Groups, Theory of)

SUFRUNENKO, D.A.; GAPASHCHUK, M.S.

Linear groups with a category. Dokl. AN BSSR 6 no.7:411-414
J1 '62. (MIRA 16:8)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR i
Belorusskiy gosudarstvennyy universitet imeni Lenina.
(Groups, Theory of)

SUPRUNENKO, D.A.

Periodic subgroups of solvable matrix groups. Dokl. AN
SSSR 147 no.2:310-312 N '62. (MIRA 15:11)

1. Predstavleno akademikom A.I. Mal'tsevyim.
(Groups, Theory of)
(Matrices)

SUPRUNENKO, D.A.

Solvable subgroups of a multiplicative group of a body. Izv.AN
SSSR.Ser.mat. 26 no.4:631-638 J1-Ag '62. (MIRA 15:8)
(Groups, Theory of)

SUPRUNENKO, D. A.

"On periodic matrix groups"

report submitted at the Intl Conf of Mathematics, Stockholm, Sweden,
15-22 Aug 62

SUPRUNENKO, D.A. (Minsk)

A class of solvable Sylow Π -subgroups of a complex complete
linear group. Mat. sbor. 61 (103) no.2:207-210 Je '63.
(MIRA 16:10)

SUPRUNENKO, D.A.

A condition for the complete reducibility of matrix group. Izv. AN SSSR.
Ser. mat. 27 no.2:435-438 Mr-Apr '63. (MIRA 16:4)
(Groups, Theory of) (Matrices)

SUPRUNENKO, D.A.

Order of the element of a group of integral matrices.
Dokl. AN BSSR 7 no.4:221-223 Ap '63. (MIRA 16:11)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.

SUPRUNENKO, D.A.; TYSHKEVICH, R.I.

Dynamic mapping. Dokl. AN BSSR 7 no.5:289-292 My '63.
(MIRA 16:12)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.

SUPRUNENKO, D.A.; PLATONOV, V.P.

A theorem of Schur. Dokl. AN BSSR 7 no.8:510-512 Ag '63.
(MIRA 16:10)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.

L 53923-65 EWT(d) Pg-4/Ph-4 LJP(c)

ACCESSION NR: AP5017362

VR/0250/64/008/007/0425/0428

AUTHOR: Suprunenko, D. A.

TITLE: Maximal commutative matrix algebras and maximal commutative matrix groups

SOURCE: AN BSSR. Doklady, v. 8, no. 7, 1964, 425-428

TOPIC TAGS: mathematic matrix, group theory

Abstract: Let L be the set of all maximal commutative subalgebras of the algebra $M_n(\Delta)$, where Δ is any field, $M_n(\Delta)$ an algebra of all $n \times n$ matrices over Δ , and K the set of all maximal commutative subgroups of the group $GL_n(\Delta)$. Then, the author proves that almost everywhere there exists a one-to-one correspondence from L to K that the algebras in L map onto the subgroups of K and the adjoint subgroups of K map onto the subalgebras of L , on condition that the field Δ has more than two elements, since then the number of elements in L is greater than the number of elements in K .

In terms of categories the above statement is as follows: Let $n > 1$ and let L_n and K_n be categories. There exists an isomorphism between L_n and K_n if and only if the base field has at least three elements. Two

Card 1/2

L 53923-65

ACCESSION NR: AF5017362

problems are posed, namely:

- 1) To what extent is the relationship between L and K preserved when the field is replaced by a local commutative ring?
- 2) What is the relationship between L and A in the case of infinite dimensional linear spaces over the field

Fig. 1.1. has formulas.

ASSOCIATION: Institut matematiki i vychislitel'noy tekhniki AN BSSR (Institute of Mathematics and Computer Engineering, AN BSSR)

SUBMITTED: 18Mar64

ENCL: 00

SUB CODE: MA

NO REF SOV: 000

OTHER: 000

JPRS

Card 2/2

SUPRUNENKO, D.A.

Two theorems on matrix groups. Dokl. AN BSSR 8 no.8:491-494
Ag '64. (MIRA 17:11)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.

L 55123-05 OCT 4) 101(c)

ACCESSION NR: AP5017518

UR/0250/64/008/010/0621/0622

AUTHOR: Suprunenko, D. A.

9
B

TITLE: Supplement of the article "Kernel of one homomorphism"

SOURCE: AN BSSR. Doklady, v. 8, no. 10, 1964, 621-622

TOPIC TAGS: homomorphism, mathematic matrix, group theory

ABSTRACT: In a previous article (Sibirskiy Matematicheskiy Zhurnal, Vol 6, No 6) the author proved a theorem that makes it possible to find a simple example of an isomorphic, locally finite p -group of matrices for a commutative ring. The present article gives an illustration of such an example. Orig. art. has: 5 formulas.

ASSOCIATION: Institut matematiki i vychislitel'noy tekhniki AN BSSR (Institute of Mathematics and Computer Engineering)

SUBMITTED: 11/1/64

ENCL: 1

SUB CODE: MA

NR REF SOV: 000

OTHER: 000

JPRS

Card 1/1

SUPRUNENKO, D.A.

Conjugateness of matrices over a residue ring. Dokl. AN BSSR
8 no.11:693-695 N '64. (MIRA 18:3)

1. Institut matematiki i vychislitel'noy tekhniki AN BSSR.

L 22403-66 EWT(d) IJP(c)
ACC NR: AP6013974

SOURCE CODE: UR/0199/65/006/001/0199/0206

AUTHOR: Suprunenko, D.

ORG: none

TITLE: Kernel of an homomorphism

SOURCE: Sibirskiy matematicheskiy zhurnal, v. 6, no. 1, 1965, 199-206

TOPIC TAGS: homomorphism, mathematic matrix

ABSTRACT: Let $Gl(n, R, p^m)$ be the group of all invertible $n \times n$ matrices over $R/(p^m)$, where R is the principal ideal domain, p is an irreducible element of the ring R , m is a positive integer. Then: Theorem 1. For any two matrices $E + pA$ and $E + pB$ in $K(n, R, p^m)$ the equation $(E + pA; E + pB) = E + [A, B] \sum_{t=2}^{m-1} (-p)^t F_{t-2}$ holds. Theorem 2. For $n, m \geq 1$, $K(n, R, p^m)$ is a nilpotent group of class $m - 1$. Elementary remarks on Lie algebras over $R/(p^m)$ and the length of the commutant sequence of the group $K(n, R, p^m)$, together with two examples, are given. Orig. art. has: 33 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: 18Dec63 / ORIG REF: 002

Card 1/1 *yes*

UDC: 519.48

L 51548-65 EWP(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) Pr-L

ACCESSION NR AP5012791

UR/0378/65/000/002/0009/0017

519.95

22
B

AUTHOR: Suprunenko, D. A., Tyshkevich, R. I.

TITLE: Dynamic representations and a class of deterministic machines

SOURCE: Kibernetika, no. 2, 1965, 9-17

TOPIC TAGS: dynamic group representation, deterministic machine, deterministic automaton, automatic control device, permutation calculus, computer design

ABSTRACT: The theory of automatic control devices investigates deterministic systems of a class of systems in discrete time with integral non-negative values. Input signals are assumed to be step functions. The present paper studies the problem of the synthesis of deterministic systems leads

L 54568-65

ACCESSION NR AP5012791

the next stage, the instant of the switching on of the representation is also taken into account. The first part of the paper outlines the calculation of dynamic representations of the parameters of these representations. Part II contains the definition of a method for the calculation of the first section the article on

ASSOCIATION: None

SUBMITTED: 09 May 64

NO REF SOV 003

ENCL: 00

SUB CODE: DP, IE

OTHER: 001

Card

2/2 MC

L 29135-66 EWT(d) LWP(c)

ACC NR: AP6018686

SOURCE CODE: UR/0199/65/006/006/1382/1387

AUTHOR: Suprunenko, D. A.; Monastyrnyy, V. I.

23
B

ORG: none

TITLE: ¹⁶ Sylow subgroups of the multiplicative group of a body

SOURCE: Sibirskiy matematicheskiy zhurnal, v. 6, no. 6, 1965, 1382-1387

TOPIC TAGS: mathematics, number theory

ABSTRACT: The article studies the structure of Sylow p -subgroups of the multiplicative group T^* of a body T of finite rank over its center. It is proved that Sylow p -subgroups of T^* , given $p > 2$, are conjugate in T^* . In addition, it is found that a sufficient condition for the conjugateness of Sylow 2-subgroups is that body T contain an infinite noncommutative 2-group. For the case of bodies of positive or zero characteristic and rank $4r$, where r is an odd number, the conjugateness of Sylow p -subgroups is proved for any prime number p . It is shown, in particular, that Sylow p -subgroups in group T^* are conjugate if body T is algebraic over the rational number field R . The authors reported on part of their findings at the Fourth All-Union Mathematical Congress in 1961. Orig. art. has: 7 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: 16Dec64 / ORIG REF: 003 / OTH REF: 004

Card 1/1 CC

UDC: 519.4

L 23907-66 - ENT(d) LIP(c)

ACC NR: AP6014955

SOURCE CODE: UR/0250/65/009/001/0005/0006

AUTHOR: Suprunenko, D. A.

ORG: Institute of Mathematics and Computer Engineering, AN BSSR (Institut matematiki i vychislitel'noy tekhniki AN BSSR)

TITLE: Condition of matrix similarity

SOURCE: AN BSSR. Doklady, v. 9, no. 1, 1965, 5-6

TOPIC TAGS: mathematic matrix, homomorphism

ABSTRACT: Given the conditions: R is an area with single-valued factorization and P is the field of ratios of area R . If p is a non-factorable element of R , then R_p represents the field $R/(p)$, and γ_p represents the natural homomorphism of R to R_p . The following theorem is proven: Let A and B be $n \times n$ matrices over R . If for any non-factorable element p of area R , matrices A_p and B_p are similar over field R_p , then A and B are similar over the field of ratios P . Orig. art. has: 10 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: 21Sep64 / ORIG REF: 001

Card 1/1 *PK*

L 23908-66 EWT(d) IJP(c)

ACC NR: AP6014956

SOURCE CODE: UR/0250/65/009/004/0217/0218

AUTHOR: Suprunenko, D. A.; Monastyrnyy, V. I.

ORG: Institute of Mathematics, AN BSSR (Institut matematiki AN BSSR); Institute of National Economy im. V. V. Kuybyshev (Institut narodnogo khozyaystva)

TITLE: Sylow subgroups of a multiplicative group of a skew field

SOURCE: AN BSSR. Doklady, v. 9, no. 4, 1965, 217-218

TOPIC TAGS: mathematics, field theory

ABSTRACT: Let T be a noncommutative, associative skew field of finite rank over its center Z and T^* its multiplicative group. Then: Theorem 1. For a given odd prime p , in group T^* , the Sylow p -subgroups are conjugate. Theorem 2. If T contains a non-abelian 2-group whose order > 8 , then in T^* all Sylow 2-subgroups are conjugate. Theorem 3. If T has a finite rank over Z and if Z is algebraic over the field of rational numbers, they for every p the Sylow p -subgroups are conjugate in T^* . A. I. LIKHTMAN informed the authors that he constructed a skew field of finite rank over its center such that its Sylow 2-subgroups are not conjugate. [JPRS]

SUB CODE: 12 / SUBM DATE: 26Dec64 / ORIG REF: 001 / OTH REF: 003

Card 1/1 BK

ACC NR: AP6020151

SOURCE CODE: UR/0250/65/009/008/0501/0503

AUTHOR: Suprunenko, D. A.; Petrova, G.L.

ORG: Institute of Mathematics, AN BSSR(Institut matematiki AN BSSR)

TITLE: Note on systems of intransitivity of a group due to prescribed substitutions

SOURCE: AN BSSR. Doklady, v. 9, no. 8, 1965, 501-503

TOPIC TAGS: automatic control system, automatic control design μ

ABSTRACT: This paper deals with a problem that arises with machines that have a finite number of states and whose inputs act upon the states as substitutions. Let S_n be a symmetric group of degree n and Γ its subgroup generated by substitutions f_1, \dots, f_m . The requirement is to construct systems of intransitivity for group Γ . This is done for both general and specific cases. Orig. art. has: 13 formulas. [JPRS]

SUB CODE: 13/ SUBM DATE: 10Apr65

Card 1/1 C C

L 22107-66 EWT(d) IJP(c)

ACC NR: AP6012669

SOURCE CODE: UR/0039/65/066/004/0598/0607

AUTHOR: Suprunenko, D. A. (Minsk)

ORG: none

16, 14, 75
TITLE: Maximal nilpotent subgroups of a full linear group over factor ring $\mathbb{Z}/(p^m)$

SOURCE: Matematicheskii sbornik, v. 66, no. 4, 1965, 598-607

TOPIC TAGS: mathematic matrix, linear function

ABSTRACT: Let \mathbb{Z} be a ring of rational integers, p a prime number, m a positive integer, and $GL(n, \mathbb{Z}, p^m)$ the group of all invertible $n \times n$ matrices over factor ring $\mathbb{Z}/(p^m)$. Given $m = 1$, then $GL(n, p)$ is written in place of $GL(n, \mathbb{Z}, p^m)$. The group of all invertible $n \times n$ matrices over the finite field $GF(p^r)$ of p^r elements is designated by the symbol $GL(n, p^r)$. The author, in articles by him and R. F. APATENOK, studied maximal irreducible nilpotent subgroups of $GL(n, p^r)$, while in an article by him and R. I. TYSHKEVICH the study of maximal locally nilpotent subgroups of a full linear group over a perfect field led to a study of maximal irreducible nilpotent subgroups of a full linear group. This article describes maximal nilpotent subgroups of the group $GL(n, \mathbb{Z}, p^m)$ by means of maximal nilpotent subgroups of the group $GL(n, p)$. The author outlines the proof of the following fundamental theorems:

Cord 1/2

UDC: 519.41/47

L 22107-66

ACC NR: AP6012569

Theorem 1. Let Γ be a maximal nilpotent subgroup of group $GL(n, p)$. Then there exist in $GL(n, \mathbb{Z}, p^m)$ maximal nilpotent subgroups \mathcal{H}_1 such that

$$\gamma(\mathcal{H}_1) = \Gamma.$$

All maximal nilpotent groups of group $GL(n, \mathbb{Z}, p^m)$ possessing the above property are conjugate in $GL(n, \mathbb{Z}, p^m)$.

Theorem 2. If \mathcal{H} is a maximal nilpotent subgroup of group $GL(n, \mathbb{Z}, p^m)$, then $\gamma(\mathcal{H})$ is a maximal nilpotent subgroup of group $GL(n, p)$. Orig. art. has: 18 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: 03Jan64 / ORIG REF: 004

Card 2/2 BLG

L 25633-66 ENT(d) IJP(c)

ACC NR: AP6016113

SOURCE CODE: UR/0039/65/068/004/0614/0622

AUTHOR: Suprunenko, D. A. (Minsk)

ORG: none

TITLE: Locally nilpotent matrix groups over an arbitrary field

SOURCE: Matematicheskii sbornik, v. 68, no. 4, 1965, 614-622

TOPIC TAGS: mathematic matrix, mathematics, nilpotent subgroup

ABSTRACT: The author studies maximal, locally nilpotent, absolutely irreducible subgroups of the full linear group $GL(n, \Delta)$, where Δ is an arbitrary field. There are absolutely irreducible, locally nilpotent subgroups in group $GL(n, \Delta)$ if and only if, for any simple divisor q of number n in multiplicative group Δ^* of field Δ , there exists an element of order q . The case of arbitrary degree n here fully reduces to the case in which $n = q^a$, where q is a prime number. If Γ is a maximal, locally nilpotent, absolutely irreducible subgroup of group $GL(q^a, \Delta)$, then Γ/Δ^* is a Sylow q -subgroup of factor group $GL(q^a, \Delta)/\Delta^*$. It is proved that a maximal, locally nilpotent, absolutely irreducible primitive subgroup of group $GL(n, \Delta)$ possesses an irreducible Abelian normal divisor. The article describes maximal, locally nilpotent, absolutely irreducible subgroups of group $GL(n, \Delta)$ which possess irreducible Abelian normal divisors. Orig. art. has: 30 formulas.

[JFRS]

SUB CODE: 12 / SUBM DATE: 20Nov64 / ORIG REF: 007

2

Card 1/1 \checkmark

UDC: 519.41/47

SUPRUNENKO, I.

"Financing and crediting capital investment." Reviewed by I. Suprunenko.
Fin.1 kred. SSSR no.6:89-92 Je '53. (MLRA 6:6)

(Buzylev, V.M.) (Construction Industry--Finance)

SUPRUNENKO, I.

Improve the financing of capital construction. Fin. SSSR 16
no.3:17-21 Mr'55. (MIRA 8:2)
(Construction industry—Finance)

SUPRUNENKO, I.

New developments in issuing short-term credits to building
contractors. Fin.SSSR 16 no.12:20-24 D '55. (MLRA 9:2)
(Construction industry--Finance) (Credit)

SUPRUNENKO, I.

Financial control over construction in 1958. Fin. SSSR 19 no.2:10-15
F '58. (MIRA 11:3)

1. Zamestitel' predsedatelya Pravleniya Prombanka SSSR.
(Construction industry--Finance)
(Banks and banking)

SUPRUNENKO, I.

Replies to readers' questions. Fin. SSSR no.19 no.10:64
0 '58. (MIRA 11:11)

(Construction industry--Finance)

PERBERG, Aron Solomonovich; SUPRUNENKO, I., otv.red.; ZAVERNYAYEVA, L.,
red.izd-va; LEBEDEV, A., tekhn.red.

[Organization of economic work in Construction Bank institutions]
Organizatsiia ekonomicheskoi raboty v uchrezhdeniakh stroibanka.
Moskva, Gosfinizdat, 1959. 127 p. (MIRA 13:1)
(Banks and banking)
(Construction industry--Finance)

- . SUPRUNENKO, I.

Planned discipline in construction and checking of title records.
Fin. SSSR 20 no. 5:82-86 My '59. (MIRA 12:10)
(Construction industry--Finance)

SUPRUNENKO, I.

Decisions of the July Plenum of the Central Committee of the CPSU
and tasks of Construction Bank branches. Fin. SSSR 21 no.10:8-13
0 '60. (MIRA 13:10)

1. Zamestitel' Predsedatelya Pravleniya Stroybanka SSSR.
(Banks and banking) (Construction industry—Finance)

NIKIFOROV, Ivan Alekseyevich; SUPRUNENKO, I., otv. red.; POGODIN, Yu.,
red.izd-va; LEBEDEV, A., tekhn. red.

[Business accounting in a contractual building organization]
Khoziaistvennyi raschet v podriadnoi stroitel'noi organiza-
tsii. Moskva, Gosfinizdat, 1961. 74 p. (MIRA 15:2)
(Construction industry--Finance)

YAMOV, Ivan Dmitriyevich; KLETCHENKO, A.V. [deceased], red.; SUPRUNENKO,
I.M., red.; ZUBRILINA, Z.P., tekhn.red.

[Raising pigeons] Razvedenie golubei. Moskva, Gos.izd-vo
sel'khoz.lit-ry, 1957. 110 p. (MIRA 11:1)
(Pigeons)

MUROMTSEV, S.N., akademik, red.; SAMOYLOV, I.I., akademik, red.;
STRESHINSKIY, M.O., kand.biolog.nauk, red.; BEREZOVA, Ye.F.,
prof., red.; SMIRENSKIY, N.V., red.; AZAROVA, O.A., red.;
SUPRUNENKO, I.M., red.; ZUBRILINA, Z.P., tekhn.red.

[Achievements of Michurin's teaching in microbiology] Dosti-
zhenia michurinskoi nauki v mikrobiologii. Pod red. S.N.
Muromtseva i dr. Moskva, Gos.isd-vo sel'khoz.lit-ry, 1958.
228 p. (MIRA 12:11)

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk imeni
V.I.Lenina. 2. Vsesoyuznaya akademiya sel'skokhozyaystvennykh
nauk imeni V.I.Lenina (for Muromtsev, Samoylov).
(MICROBIOLOGY)

MAL'CHENKO, V.M.; RUDNIK, A.V.; DZYUBA, M.L.; ROSSOSHANSKAYA, V.A.; AZAROVA,
O.A.; KRAVCHENKO, Z.I.; STRIZHEV, A.N.; SUPRUNENKO, I.M.; PEVZNER,
V.I., tekhn.red.

[Collective-farm calendar for 1960] Kalendar' kolkhoznika na 1960
god. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 175 p.
(MIRA 12:12)

(Calendars)

(Agriculture)

SUPRUNENKO, I.O.; SMIRNOV, L.M.

Direct indications of the oil and gas potential of the Kamchatka
Peninsula. Vop. geog. Kamch. no. 2:95-99 '64 (MIRA 19:1)

9
KULIKOV, V.V., gornyy inzhener.; POLISHCHUK, A.D., gornyy inzhener.; BORISENKO,
S.G., gornyy inzhener.; YAREMENKO, S.G., gornyy inzhener.; SUPRUNENKO,
L.V., gornyy inzhener.

"Mining systems for thick ore deposits" by V. R. Imenitov. Gor.
zhur. no.2:76-78 P '57. (MLRA 10:4)
(Mining engineering)

SUPRUNENKO, Leonid Yevdokimovich; DOSTAL', V.G., red.; STEPANOVA,
N.D., red. 12d-va; KAZANSKAYA, L.I., tekhn. red.

[Forests of the Northern Caucasus and their industrial use]
Lesy Severnogo Kavkaza i ikh promyshlennoe osvoenie. Mo-
skva, Goslesbumizdat, 1963. 131 p. (MIRA 17:2)

SUPRUNENKO, P.

On Khortitsa Island. Znan. ta pratsia no.8:5-6 Ag '59.
(Zaporozh'ye--Electricity in agriculture) (MIRA 13:2)


S/137/62/000/006/093/163
A160/A101

AUTHOR: Suprunenko, P. O.

TITLE: The investigation of the effect of high-temperature heating on the position of the Curie point of ferrochrome alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1962, 12, abstract 6170 ("Visnyk Kyyivs'k. un-tu", no. 1, 1958, ser. fiz. ta khimiyi, no. 1, 137 - 138, Ukrainian; Russian summary)

TEXT: Investigated were ferrochrome alloys containing 45, 47 or 49 at. % of Cr. The samples were annealed at 1,200°C. The heating of the samples was carried out at a rate of 200 degrees/hour. It was determined that the Curie temperature for ferroalloys containing 45 at. % of Cr after annealing for 26 and 114 hours equals 423 and 451°C, respectively, (prior to annealing 405°C). The Curie temperature for samples containing 47 at. % of Cr after annealing for 24 and 90 hours equals 379 and 393°C, respectively, (prior to annealing 367°C). For alloys, containing 49 at. % of Cr after annealing for 24 and 100 hours, the Curie temperature is 335 and 355°C, respectively, (prior to annealing 328°C). The



Card 1/2

The investigation of the...

S/137/62/000/006/093/163
A160/A101

shifting of the Curie point to higher temperatures after annealing at 1,200°C
cannot be definitely explained only on the basis of the experiments carried out.

V. Srednogorska

[Abstracter's note: Complete translation]

✓

Card 2/2

S/137/62/000/007/039/072
A057/A101

AUTHOR: Suprunenko, P. O.

TITLE: Investigation of the sigma-phase in iron-chromium alloys

PERIODICAL: Referativnyi zhurnal, Metallurgiya, no. 7, 1962, 23, abstract 71136
("Visnyk Kyivs'k. un-tu", 1958, no. 1, ser. fiz. ta khimii, no. 1, 139 - 141, Ukrainian; Russian summary)

TEXT: Results of dilatometric investigations of the electric resistance and magnetic saturation of the σ -phase in Fe-Cr alloys containing 45, 47, and 49 at% Cr are presented. The elongation $\Delta l/l$ of the sample depends upon the rate of heating; the smaller the latter the smaller is $\Delta l/l$. For all alloys was observed an inflection in the course of the curves $l = f(T)$ at 520°C , which is weaker and shifts towards the region of higher temperature with an increase in the rate of heating. A decrease of resistance was observed with the alloy containing 49 at% Cr at a holding time of more than 180 hrs at 500°C . No changes in magnetic saturation of samples annealed during about 400 hrs at 500°C could be observed.

Ye. Layner

[Abstracter's note: Complete translation]

Card 1/1

SUPRUNENKO, P.A. [Suprunenko, P.O.]

Nature of the short-range order of alloys of the Fe-Cr system.
Ukr.fiz.shur. 3 no.5:673-677 S-O '58. (MIRA 12:2)

1. Kiyevskiy gosudarstvennyy universitet.
(Iron-chromium alloys)

SHCHUKA, P. A., Cand Phys-Math Sci -- (diss) "An Investigation of Phase Transformations in Ferro-chrome Alloys in the Realm of Sigma-phase Compositions." Kiev, 1959, 10 pp, (Ministry of Higher and Secondary Specialist Education USSR; Kiev Order of Lenin State Univ. im T. G. Shevchenko) 150 copies, no price given, (KL, 21-60, 118)

S/137/62/000/004/081/201
A052/A101

AUTHOR: Suprunenko, P. O.

TITLE: The dependence of values of the thermal coefficient of linear expansion of Fe-Cr alloys on the high-temperature exposure

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 7, abstract 4145
("Visnyk Kyivsk. un-tu" no. 3, 1960, ser. fiz ta khimii, no. I, 49 - 52, Ukrainian; Russian summary)

TEXT: The thermal coefficient of linear expansion of Fe-Cr alloys containing 45, 47 and 49 atomic % Cr was measured in the range from indoor temperature to 1,000°C on a high-sensitive dilatometer of Permyakov-Belous system. The effect of a preliminary annealing of up to 114 hours' duration at 1,200°C on the thermal expansion of alloys was investigated. This phenomenon is similar to the effect of the change of alloy concentration, when the Curie point, electric resistance and the kinetics of ferrite transformation into δ -phase change, whereas the thermal coefficient of linear expansion remains constant.

L. Bystrov

[Abstracter's note: Complete translation]

Card 1/1

KUZ'MENKO, P.P.; SUPRUNENKO, P.A. [Suprunenko, P.O.]

Effective Ni and Al charges in a NiAl alloy. Ukr. fiz. zhur.
6 no.4:572-574 J1-Ag '61. (MIRA 14:9)

1. Kiyevskiy gosudarstvennyy universitet im. T. Shevchenko.
(Nickel--Aluminum alloys)

S/185/62/007/011/014/019
D234/D308

AUTHORS: Kuz'menko, P.P. and Suprunenko, P.O.

TITLE: Some anomalous properties of α -Ti

PERIODICAL: Ukrayins'kyi fizychnyy zhurnal, v. 7, no. 11, 1962,
1242-1245

TEXT: Metals in which the last Brillouin zone is almost completely filled exhibit as a rule absorption bands in the red and infrared regions. The band width is assumed to correspond to an energy ΔE . If such metals are heated, a part of the electrons will probably pass into the almost empty higher energy where their mobility will be greater. This will cause an increase in the conductivity and the temperature dependence of the resistance will therefore differ from that of other metals. In the case of α -Ti $\sigma = \sigma_1 + \sigma_2$, σ_1 being the conductivity when the passage of electrons can be neglected. The resistance $\sigma_1 = 1/\rho_1$ can be found by extrapolation to high temperatures. Assuming that the conductivity can be described as for a semiconductor, except that the mobility of an

Card 1/2

Some anomalous properties ...

S/185/62/007/011/014/019
D234/D308

electron is proportional to $1/T$ and the Fermi energy is practically independent of temperature, $\ln(\Delta\rho/\rho) - (3/2) \ln T$ must depend linearly on $1/T$. This is confirmed graphically, and the value of ΔE was found to be 2.8 kcal/mole. The deviation of the heat capacity from 5.95, found by a similar method, is 2.4 kcal/mole, which agrees well with experimental data. According to the above, an infrared absorption band near 11 microns is to be expected. There are 4 figures. ✓

ASSOCIATION: Kyiv'skyy derzhuniversytet im. T.H. Shevchenka
(Kiev State University im. T.H. Shevchenko)

SUBMITTED: April 20, 1962

Card 2/2

L 16930-66 EWT(m)/FWP(t)/ETI IJP(e) JD/JN/JH
ACC NR: AP6015446 SOURCE CODE: UR/0181/66/008/005/1329/1335

AUTHOR: Kuz'menko, P. P.; Suprunenko, P. A.

ORG: Kiev State University im. T. G. Shevchenko (Kiyevskiy gosudarstvennyy universitet)

TITLE: Estimate of the heats of phase conversions and the energy of vacancy formation in simple metals

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1329-1335

TOPIC TAGS: phase transition, allotropic transformation, electron structure

ABSTRACT: It is assumed that the principal contribution to the heat effect in conversion is due to the variation in internal energy at $T=0^{\circ}\text{K}$. The latter is computed by using the potential of the metal in the free electron approximation and the virial theorem. It is shown that the heat of fusion of monovalent metals is proportional to the Fermi energy and the relative change in volume. Calculations agree well with experiment. For multivalent metals it was necessary, in addition, to account for the change in internal energy owing to the redistribution of the valence electrons over the energy bands. The magnitude of the redistribution of valence electrons in allotropic conversions of tin and thallium and in the fusion of aluminum is estimated. Results are tabulated and compared with the data in the literature and pertinent energy bands are presented schematically. Orig. art. has: 2 figures, 3 tables.

SUB CODE: 20,62/ SUBM DATE: 28May65/ ORIG REF: 011/ OTH REF: 009

Card 1/1 awm

SUPRUNENKO, Pavlo Pavlovich

[Dawns on the Dnieper] Zori nad Dniprom. Kyiv, Radians'ka
shkola, 1963. 178 p. (MIRA 17:12)

SUPRUNENKO, R.S.

"Improving conditions of work in iron ore sintering plants "
by A. V. Sheleketin . Reviewed by R. S. Suprunenko. Metal-
lurg 6 no.4.39 Ap '61 (MIRA 14:3)

1. Rukovoditel' ventilyatsionnoy gruppy energosilovoy labora-
torii zavoda "Zaporozhstal'."
(Sintering)
(Sheleketin, A. V.) (Karpushinskii, N.S.)

SUPRUNENKO, R.S.; PRITYKIN, D.P.; NOVIKOV, B.G.; KISSIN, D.A.;
BERSHTEYN, R.S.; SHABLIYENKO, I.D.

Scrubbing of sintering furnace gas. Metallurg 9 no.10:14-15
0 '64 (MIRA 18:1)

1. Zavod "Zaporozhstal".

BORISOV, M.D.; SUPRUNENKO, V.A.; SUKHOMLIN, Ye.A.; VOLKOV, Ye.D.

[Stability of a heavy-current discharge in hydrogen at low electric field strength] Issledovanie ustoichivosti vysokotochnogo razriada v vodorode pri malykh napriazhenostiakh elektricheskogo polia. Khar'kov, Fizikotekhn. in-t AN USSR, 1960. 307-338 p. (MIRA 17:1)
(Electric discharges through gases)

..1.1000

77242

SOV/89-8-2-7/30

AUTHORS: Zeydlits, P. M., Bolotin, L. I., Revutskiy, E. I.,
Suprunenko, V. A.

TITLE: Strong Focusing in a Linear Accelerator

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 2, pp 127-133
(USSR)

ABSTRACT" Application of strong focusing in linear accelerators. The strong focusing method was proposed by Courant, Livingston, Snyder, and Blewett (see refs at end of abstract) in 1952, while Zel'manov suggested in 1953 that a lens be put at the origin of the focusing system. This half lens and multiple periodicity proposed by Ya. B. Faynberg, A. I. Akhiezer, and K. N. Stepanov lead to a substantial reduction of the field gradient needed for focusing. A. A. Sharshanov developed a method for setting up approximate solutions of the equation for particle oscillations in the paraxial region of the accelerating system due to the alternate focusing and defocusing forces of the quadrupole lens:

Card 1/15

Strong Focusing in a Linear Accelerator

77242

SOV/89-8-2-7/30

$$\frac{d^2x}{d\xi^2} + \Omega^2(\xi)x = \varepsilon/(x, \xi), \quad (1)$$

where $\Omega^2(\xi)$ is quasi-periodic function of alternating sign; ε , a small parameter; $\xi = \frac{z}{\beta\lambda}$, dimensionless longitudinal coordinate; λ , wavelength; $\beta = \frac{v}{c}$, relative velocity. Since older references contained only approximate diagrams of stable regions, the authors calculated regions of stability sufficiently accurate to be useful for practical purposes. They are shown in Figs. 1-3 for various combinations of focusing and defocusing lenses and consequently, various values for Γ_{IP} and γ , computed for the case that:

Card 2/15

Strong Focusing in a Linear Accelerator

77242
30V/89-8-2-7/30

$$\Omega(\xi) = \begin{array}{l} \frac{1}{1-a} Y - \text{in the defocusing lens} \\ 1 \text{ } a \text{ } X - \text{in the accelerating gap} \\ \frac{1}{1-a} Y - \text{in the focusing lens} \end{array}$$

while

$$X^2 = \frac{Z a \pi e / G k}{4 m c^2 \beta} \sin^2 \varphi, \quad (3)$$

In the case of electrostatic lenses:

$$Y^2 = \frac{Z (1-a)^2 e V k \lambda^2}{4 m c^2 a^2}; \quad (4a)$$

and in the case of magnetic lenses:

$$Y^2 = \frac{300 Z (1-a)^2 e H' \beta \lambda^2}{4 m c^2}, \quad (4b)$$

where H' is gradient of the magnetic field; V , potential differences on lens electrodes; k ,

Card 3/15

Strong Focusing in a Linear Accelerator

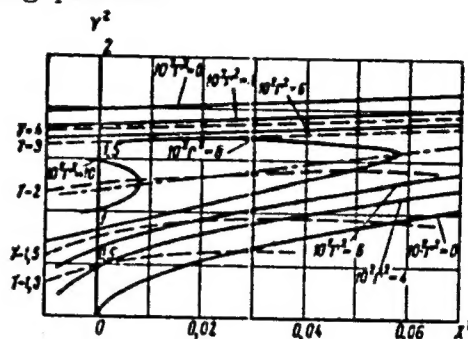
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coefficient depending on shape of electrodes; $2a$, lens aperture; α , ratio of gap length to length of the period ($\alpha = 0.25$); Z , A are respective charge and mass numbers; φ_s is synchronous phase; E , average over the accelerator length of field strength amplitude of the accelerating field; G , utilization factor of the accelerating field (for $\alpha = 0.25$, maximum value of $G = 0.9$); IF subscript with I refers to the initially focusing planes.

Fig. 1. Stability region for $N = 1$.

Card 4/15



Strong Focusing in a Linear Accelerator

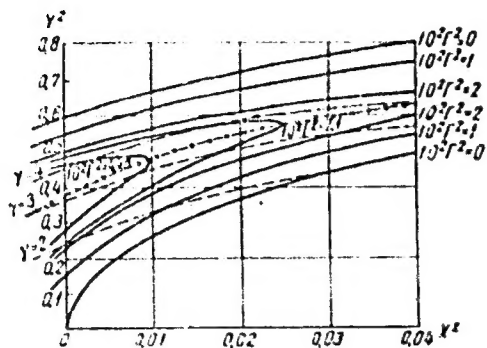


Fig. 2. Stability region for $N = 2$.

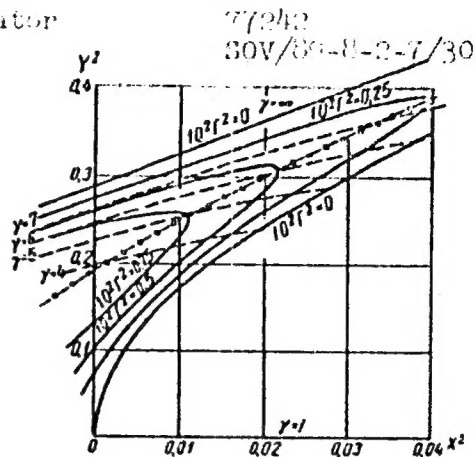


Fig. 3. Stability region for $N = 3$.

N represents the number of successive lenses of the same sign (multiple periodicity). Choosing the working point in the middle of the stability region, the potential on the lenses decreases as $2^{-(N-1)}$.

Card 5/15